

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS,) CASE: IPR2024-00441
LLC,) U.S. PATENT
Petitioner,) NO. 8,792,008
vs.)
ENTROPIC COMMUNICATIONS, LLC,)
Patent Owner.)
- - - - -)

ZOOM DEPOSITION OF
DAVID B. LETT

Thursday, April 3, 2025, 10:00 a.m.(EST)

WITNESS LOCATION:
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WANDA L. ROBINSON, CRR, CCR, No. B-1973
Certified Shorthand Reporter/Notary Public

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1 INDEX OF EXAMINATIONS 2 3 DAVID B. LETT 4 By Mr. Galluzzo Page 4 5 6 7 INDEX OF EXHIBITS <table><tr><th>8 NO.</th><th>DESCRIPTION</th><th>PAGE</th></tr><tr><td>10 Exhibit No. 1009</td><td>U.S. Patent Application Publication Kamieniecki</td><td>7</td></tr><tr><td>11</td><td>US 2005/0114879 A1</td><td></td></tr><tr><td>12 Exhibit No. 1010</td><td>U.S. Patent Application Publication Konstantinos</td><td>7</td></tr><tr><td>13</td><td>US 2010/0120386 A1</td><td></td></tr><tr><td>14 Exhibit No. 1032</td><td>Reply Declaration of David B. Lett In Support of Petitioner's Reply</td><td>18</td></tr></table> 15 16 17 18 19 20 21 22 23 24 25	8 NO.	DESCRIPTION	PAGE	10 Exhibit No. 1009	U.S. Patent Application Publication Kamieniecki	7	11	US 2005/0114879 A1		12 Exhibit No. 1010	U.S. Patent Application Publication Konstantinos	7	13	US 2010/0120386 A1		14 Exhibit No. 1032	Reply Declaration of David B. Lett In Support of Petitioner's Reply	18	Page 3 1 counsel and Ms. Robinson a chance to keep up. 2 Is that fair? 3 A Yes. 4 Q Is there anybody in the room with you 5 today? 6 A No. 7 Q If anybody does come into the room with 8 you, can I ask you just announce that for the 9 record? 10 A Yes. 11 Q Do you have any applications open on your 12 computer other than Zoom and Adobe and whatever else 13 you might need to look at exhibits in this case? 14 A No, I do not. 15 Q And can I ask you do not communicate with 16 anybody else while you're testifying during this 17 deposition today, whether electronically or 18 otherwise? 19 A I understand. 20 Q And you can agree to do that? 21 A Yeah. 22 Q Agree to do that? 23 A I agree not to, to do that. 24 Q Since you have copies of the exhibits with 25 you, you of course can review them at any time. I	Page 5
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10 Exhibit No. 1009	U.S. Patent Application Publication Kamieniecki	7																		
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Page 6 1 just ask, like we did in person, that you announce 2 for the record purposes what you're looking at. Is 3 that fair? 4 A That's fair. 5 Q I also understand that you have copies of 6 everything, your declarations and the exhibits that 7 you've reviewed in this case. Is that accurate? 8 A That's right. 9 Q Are those copies paper, electronic, a mix 10 of the two? 11 A A mix of the two. I've got duplicates of 12 some of the documents with paper, but I've got all 13 of the documents on a thumb drive that has all the 14 exhibits for both matters. 15 Q Okay. If you need to access any of that, 16 please do. Like I said, just let me know when 17 you're doing that. 18 A Okay. 19 Q Also, because we're taking a consolidated 20 deposition here today, I am intending to ask 21 questions that I think apply to both cases, so both 22 the '008 patent and the '826 patent and your 23 declarations in both of those cases. 24 If at any point my question would require 25 you to answer a different way for one of the cases	Page 8 1 right? 2 A Yes. 3 Q Kamieniecki discloses a single channel 4 tuner? 5 A Discloses an out-of-band tuner and in-band 6 tuner, so at least two, and expresses a desire to 7 have more. 8 Q So that wasn't quite my question. Does 9 Kamieniecki disclose a single channel tuner? 10 A I mean he discloses an in-band tuner that, 11 as described, is for one video channel, and he also 12 describes an out-of-band tuner that receives a 13 channel for other purposes, data, command and 14 control, that kind of thing. 15 Q Do you read Kamieniecki as disclosing a 16 multichannel tuner? 17 A No. It has two single tuners: One 18 out-of-band and one in-band, but it's not limited to 19 that because he's describing that there's a need to 20 have more tuners and he's basically describing if 21 you don't have more tuners, this is a -- this is a 22 way to sort of use one tuner to search through the 23 channels to perform monitoring. 24 Q So I wasn't asking about what he was 25 disclosing, and I understand you have opinions and
Page 7 1 than the other, can you tell me that, and I'll ask a 2 more specific question and you can provide a more 3 specific answer for each case? 4 A Yes, I will try to do that. 5 Q But just to let you know, I'm intending to 6 ask questions that will apply to both. Do you 7 understand that? 8 A Yes. 9 Q Is there any reason why you can't give 10 full, truthful and accurate testimony here today? 11 A No, not that I'm aware of. 12 Q All right. With that, I'll start to get 13 into my questions. 14 So first question I want to talk about the 15 Kamieniecki reference. 16 MR. GALLUZZO: For the record, that's 17 Exhibit 1009. 18 (Whereupon, Exhibit 1009 was previously 19 marked for identification.) 20 (Whereupon, Exhibit 1010 was previously 21 marked for identification.) 22 BY MR. GALLUZZO: 23 Q If you need to refer to that document, Mr. 24 Lett, please do. 25 You're familiar with that reference,	Page 9 1 theories in this case, but I prefer and appreciate 2 it if you stick to the questions I ask. 3 So the way I see things, there are single 4 channel tuners and there are multichannel tuners. 5 Is Kamieniecki a single channel tuner or a 6 multichannel tuner? 7 MR. QUALEY: Objection to form. 8 A Kamieniecki discloses two single channel 9 tuners. 10 Q Is either of those tuners capable of 11 multichannel tuning? 12 A I don't think he discloses that. 13 Q Is it, even if not disclosed, is it your 14 opinion either of those tuners is capable of 15 multichannel tuning? 16 A A POSITA would not consider those to be -- 17 like the in-band tuner he describes, because he's 18 going through all the -- you know, searching through 19 channels to monitor different channels, one would 20 understand that it's a single channel tuner in his 21 spec that he's disclosing, for the tuner -- 22 Q Kamieniecki also doesn't disclose a design 23 using multiple single channel tuners in parallel? 24 A I think he does because he's got both an 25 in-band and an out-of-band tuner. So that's two.

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Page 10 1 Two tuners. 2 Q So it's your view that the in-band and 3 out-of-band tuners would constitute multiple single 4 channel tuners in the parallel? 5 A That seems right, yes. 6 Q Is Kamieniecki an impractical design? 7 A What do you mean? 8 Q Well, is it a practical design or an 9 impractical design? 10 A I mean I'm not sure what you mean by 11 practical or impractical in this case. 12 Q You have no understanding what that word 13 means? 14 A I mean I think -- I mean it would be 15 obvious to a POSITA on how to implement the design 16 as taught by Kamieniecki. 17 Q And is that design a practical one that 18 could be used in the real world? 19 A Sure. 20 Q So it's not an impractical design? 21 A That's fair. 22 Q Is having a single channel tuner in a 23 set-top box an impractical design? 24 A No. 25 Q Is there anything wrong with it?	Page 12 1 wrong with using a single channel tuner to do that, 2 right? 3 A I mean I -- nothing wrong with is a very 4 broad term, right, so what's clearly wrong with that 5 in the context of the combination is that you're not 6 monitoring but one channel. 7 Q In 2011 -- 8 A One video channel, I should say. You're 9 also monitoring one out-of-band channel. 10 Q In 2011, receipt and use of multiple 11 channels wasn't the only way, right? 12 A The only way for what? 13 Q The only way to build a set-top box. 14 A I mean there's an infinite number of ways 15 to build a set-top box. 16 Q And in 2011, single channel tuners were 17 still being sold to customers? 18 A Well, yes. So we had, and vendors like 19 the company I work for, we had low-end models, you 20 know. Some didn't have a return path. They're like 21 basic set-top boxes. And then all the way up to 22 DVRs with multiple tuners, as well as, you know, 23 IPTV boxes that receive channels through DOCSIS. 24 There was a lot of different types of 25 set-top boxes being sold, depending on what the
Page 11 1 A Well, it just doesn't allow you to monitor 2 multiple channels that, that Kamieniecki describes 3 is desired, and that's why in the combination we 4 brought in Konstantinos, because it would be solving 5 the problem that Kamieniecki describes and that he 6 would like to be able to monitor more than one 7 channel -- more than one video channel at a time, 8 and more than one out-of-band channel at a time. 9 Q But if a customer or a user only wanted to 10 receive a single television channel at a time, a 11 single channel tuner, there's nothing wrong with 12 that, right? 13 MR. QUALEY: Objection to form. 14 A So what is disclosed in the combination is 15 monitoring many channels simultaneously and watching 16 many simultaneous channels, watching or recording 17 many channels. 18 So that's not the context of what the 19 combination of Kamieniecki and Kostantinos 20 comprises. 21 Q I understand that that's not your 22 combination. I'm asking a slightly different 23 question. 24 My question is, if one wanted to receive 25 only a single television channel, there's nothing	Page 13 1 customer wanted, right. 2 So, for example, like Comcast would have 3 very, let's call them, low-feature customers that 4 were just interested in, you know, watching one 5 channel at a time and going channel up, channel 6 down, that kind of thing. 7 Well, there's a whole other end of the 8 spectrum of customers on the other end that wanted 9 to be able to watch and record channels and do 10 picture-in-picture, and, you know, utilize the 11 services of -- data services that are interactive 12 with the DOCSIS functionalities, and so on. 13 So it's a complete gamut from low end to 14 high end of set-top boxes that were being sold. 15 Q That was true in 2011? 16 A Yes. 17 Q Still true today? 18 A I'm not sure. I haven't paid that much 19 attention since about 2011 with what's being sold 20 because my personal knowledge of the cable industry, 21 you know, sort of ended around when I left Cisco and 22 I went to work for EchoStar and I went to the 23 satellite world. 24 Q So do you have any knowledge about what 25 MSOs, like Comcast, are providing its customers

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Page 14 1 today in terms of the number of channel tuners in 2 their set-top boxes? 3 A No, not really. 4 Q Do you have any reason to doubt that MSOs 5 like Comcast are still to this day selling single 6 channel tuner set-top boxes to their customers? 7 A I really don't know, so I don't have a 8 reason to doubt or not doubt because I don't know. 9 Q You are familiar with Comcast as a 10 company? 11 A Yes. 12 Q They are an MSO? 13 A Yes. 14 Q What is MSO stand for? 15 A Multiple system operator. 16 Q Sometimes they're known as Xfinity; is 17 that right? 18 A Yeah, I think that's the brand that they 19 might use. I'm not certain, but I've heard that in 20 relation to Comcast. 21 Q As a general matter, are you familiar with 22 MSOs like Comcast posting information about their 23 set-top boxes on their websites? 24 A At what time frame? 25 Q Any time frame?	Page 16 1 Q In 2011, did Scientific Atlanta sell 2 low-end models with single channel tuners to 3 customers? 4 A Yes. 5 Q And Scientific Atlanta was still designing 6 and building -- 7 A Actually, correction. Sorry. 8 We had been bought by Cisco Systems at 9 that point. So it was Cisco Systems. 10 Q Thank you. 11 In 2011, Cisco Systems was selling low-end 12 models with single channel tuners to customers, 13 correct? 14 A Yes. 15 Q And Cisco Systems was still designing and 16 building such low-end models with single channel 17 tuners? 18 A I'm not sure if we were designing any in 19 2011 that had single channel tuners. I cannot 20 recall. 21 Q In 2011, customers were buying those 22 low-end models with single channel tuners, right? 23 A I think so. I mean it's hard to remember 24 exactly, but it seems like that is true. 25 Q Customers wouldn't be buying those if they
Page 15 1 A I mean they probably did. I don't know 2 for sure, but it seems like they would have. I just 3 can't remember specifically, you know, bringing up a 4 website and finding that information. Perhaps it's 5 true. I don't recall. 6 Q If it is true and if Comcast did post 7 information about its set-top boxes on its websites, 8 would you have any reason to doubt that the 9 information is accurate? 10 A I don't know how I would know unless I 11 looked at the information to see if it's accurate or 12 not, and I have not looked at such information. 13 Q Sitting here today, do you have any reason 14 to doubt that that information is accurate? 15 A Perhaps you could show me an example and I 16 can tell you if it's accurate or not. 17 Q Generally speaking, you have no reason to 18 doubt, do you? 19 A I have no opinion one way or the other 20 because I have not looked at such information. 21 Q Let's go back to -- we were discussing 22 single channel tuners and you referred to low-end 23 models and low-featured customers. 24 Do you recall that? 25 A Yes.	Page 17 1 weren't being used in the field, right? 2 A I mean it's probably logical that one 3 would not buy something and not use it, but I 4 suppose there's a case where somebody could buy 5 something and not use it. I mean I don't know. 6 Q That doesn't make business sense, though, 7 does it? 8 A Well, they sometimes did some crazy 9 things, and then, you know, changes of situations 10 with regulatory requirements, and so on, could 11 disrupt things quite a bit. So there may be some 12 cases where that happened. I can't recall any 13 specifically. I'm just -- I just know there was a 14 lot of craziness going on, right. So with, you 15 know, government mandates, for example. 16 Q What kind of government mandates? 17 A Well, for example, and I can't remember 18 what year, I think it was in before 2011, you know, 19 I guess it was an SEC that said no more analog 20 broadcast over the air. Those kinds of things that 21 were government imposed. 22 Q But no government regulations requiring 23 MSOs to buy low-end models of set-top boxes? 24 A I don't know. 25 Q So in 2011, Cisco Systems was still

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Page 18 1 selling single channel tuner set-top boxes. Also in 2 2011, DOCSIS 3.0 existed, right? 3 A I don't remember the dates of DOCSIS 3.0. 4 Perhaps it's in my declaration. And if so, maybe 5 you could point me to it and I can verify the date. 6 Q I don't know if I can see it quickly. I 7 guess the date doesn't really matter so much, but 8 let's just talk about DOCSIS 3.0 generally. 9 You are now familiar with that standard, 10 right? 11 A Yes. 12 Q And that required simultaneous reception 13 of four video channels? 14 A No, not exactly. 15 I'm going to look at my declaration to 16 find exactly the right words here. So for your 17 information, I'm looking at my declaration. 18 (Whereupon, Exhibit 1032 was previously 19 marked for identification.) 20 BY MR. GALLUZZO: 21 Q For the record, that's Exhibit 1032; is 22 that right? 23 A Actually, I was going to look at 1002, but 24 I can look at 1032 also. 25 Q Well, whichever it is, just tell me for	Page 20 1 channels? 2 A I'm sorry, I missed part of that. Would 3 you mind repeating that? 4 MR. GALLUZZO: Ms. Robinson, would you 5 mind reading it back. 6 (The record was read by the reporter as 7 follows: "Do you have any basis, sitting here 8 today, to believe that DOCSIS as of 2011 did 9 require simultaneous monitoring and tuning of 10 separate channels?") 11 A I don't rail if it required monitoring 12 separate channels. 13 Q Do you have any basis, any fact, any 14 reason, that you can tell me about today that it 15 would require or do you just not know one way or the 16 other? 17 A I don't know one way or the other without 18 looking at the specification in detail. 19 Q So let's talk more generally about DOCSIS. 20 It's not a requirement to comply with 21 DOCSIS, right? 22 MR. GALLUZZO: Objection. 23 A In what context? 24 Q An MSO can decide it doesn't want to 25 comply with DOCSIS?
Page 19 1 the record which exhibit number you're looking at. 2 A For right now I'm looking at 1032. 3 Okay, yes. 4 If you look at Paragraph 12 of that 5 document, DOCSIS 3.0 would require the simultaneous 6 reception of at least four channels. 7 Q So you agree DOCSIS 3.0, after it's 8 issuance, did require simultaneous reception of four 9 channels or perhaps more? 10 A Yes. But that was for the DOCSIS 11 capability. So it may or may not be video channels, 12 depending on how the system was implemented on those 13 four channels. 14 Q Since we're at Paragraph 12, I know 15 there's some dispute about what you opine about 16 DOCSIS. Just to confirm, because I want to make it 17 crystal clear, you agree that DOCSIS as of 2011 did 18 not require simultaneous monitoring and tuning of 19 separate channels, correct? 20 A I do not know the answer to that question. 21 I do know the answer that it required to be able to 22 simultaneously receive four downstream channels. 23 Q Do you have any basis, sitting here today, 24 to believe that DOCSIS as of 2011 did require 25 simultaneous monitoring and tuning of separate	Page 21 1 A I'm not sure if it's required or not. I 2 mean the industry had a motivation to implement 3 cable modems, as Kamieniecki describes in his 4 patent, and the DOCSIS standard was developed for 5 cable modems, and there were, there were benefits to 6 the MSOs and to their customers by providing 7 services that were using cable modems. And so there 8 was a general market demand, let's call it, for the 9 functionality that DOCSIS provided. 10 So it was natural for, based on those 11 market demands, the DOCSIS standard to be developed 12 and to use that DOCSIS standard in products. 13 Q Mr. Lett, that's not at all what I was 14 asking. I understand that you've been prepped on 15 certain topics and you'd like to say certain things. 16 I would appreciate it if you would listen to my 17 questions and answer the ones that I ask. 18 So I will try again. Maybe a different 19 way. 20 So here's my question: In 2011, let's 21 talk about those low-end models with the single 22 channel tuners in them, the ones that you said were 23 just reception of a single channel, channel up, 24 channel down. Those didn't require DOCSIS 25 compliance, did they?

Page 22 1 A I mean I don't think any required it, 2 right. So if you look at the features that are 3 required for that particular functionality, you 4 know, you want to make it as cheap as possible, 5 which basically that basic set top was as cheap as 6 possible. The customer, MSOs in this case, wouldn't 7 probably pay for the functionality to put a DOCSIS 8 tuner in. 9 So, therefore, it probably wouldn't make 10 sense to put that in there. 11 Q And it wouldn't make sense to put it in 12 there because it would cost more than the feature 13 set needed? 14 A I think that's accurate, yes. In the very 15 low end -- let's make it as cheap as we can possibly 16 make it kind of box. 17 Q So for at least some set-top boxes that 18 didn't have a DOCSIS modem, DOCSIS wasn't a required 19 standard? The set top didn't have to comply with 20 that standard? 21 A I mean I don't know if any had to comply 22 with the DOCSIS standard because, as I described, 23 DOCSIS was a feature -- was a functionality that 24 provided the features that the market demanded. So 25 some models would have DOCSIS and some would not.	Page 24 1 an analog channel, one could put multiple video 2 channels in a certain amount of frequency, like six 3 megahertz may have 10 video channels. 4 So it also allowed them to provide 5 functionality that was being demanded in the 6 marketplace for more channels. And it was much more 7 cost-effective per channel than the analog 8 equivalent, which only provided one video channel 9 per six megahertz. And I'm talking about North 10 America. Of course in other places it was different 11 bandwidth, like eight megahertz, for example. 12 Q Some of your testimony in your reply 13 declaration relates to the Explorer 4200. 14 Do you recall that? 15 A Yes. 16 Q The Explorer 4200 had a DOCSIS modem in 17 it; is that right? 18 A That's right. 19 Q And that modem was for out-of-band 20 signaling? 21 A It was for DOCSIS functionalities. 22 Two-way -- DOCSIS has an upstream and downstream. 23 So it has two-way functionality. 24 Q I guess my point is, that DOCSIS modem 25 wasn't for receipt of television video channels,
Page 23 1 Q That's true in 2011? 2 A Yes. The basic set-top box I've been 3 describing did not have DOCSIS. 4 Q If an MSO decides to have DOCSIS modems in 5 its set-top boxes, its headend would have to be 6 capable of complying with DOCSIS, right? 7 A That's right. I mean it's a system. So 8 the headend works with the set-top boxes and the 9 cable modems and everything else in between all 10 together to perform functionality. 11 Q And if a headend didn't already comply 12 with DOCSIS, that would require purchase of 13 additional equipment at the headend? 14 A So when DOCSIS was first introduced, 15 one -- cable MSO went to extreme measures to, 16 because the market demanded these cable modem 17 features and functionality, to add DOCSIS to their 18 headend, and that was because of market demand. 19 Q Adding DOCSIS to the headend costs the 20 MSOs millions of dollars when they did it? 21 A I don't know how much it cost, but, again 22 -- you know, also at the same time they were saving 23 money because they were able to also switch to 24 digital -- let's call it compressed video signals 25 being sent over cable network, so that as opposed to	Page 25 1 correct? 2 A It can be, and it was used for video 3 channels. 4 Q In the 4200? 5 A I don't remember in the 4200, if that was 6 true or not. It might have been. I just don't 7 recall. 8 Q Understanding that DOCSIS could be used 9 generally for receiving television channels, you 10 have no reason to believe that it was for the 4200, 11 correct? 12 A I have no reason to recall, but, I mean -- 13 scratch that. 14 I do not recall. 15 Q So you have no reason to doubt that it was 16 only for signaling and not for receipt of television 17 video channels? 18 A I mean I don't know. 19 Q You would agree with me, though, that the 20 DOCSIS signaling, upstream and downstream signaling, 21 is different than television video channels, right? 22 A I think that's a fair assessment, yes. 23 Q Is a DOCSIS modem different from a DOCSIS 24 tuner? 25 A Well, a DOCSIS modem has as one of its

Page 26 1 components a tuner. Or in the case of Kostantinos, 2 you know, the -- I'm going to look at Konstantinos. 3 The channel selector could be used for the 4 downstream component of the DOCSIS signaling, of the 5 DOCSIS functionality, I should say. 6 Q You agree DOCSIS uses QAM modulation, 7 Q-A-M? 8 A That's right. 9 Q And sending QAM modulation to a set-top 10 box, that's going to require certain hardware at the 11 headend that's compatible with that, right? 12 A That's right. It's a closed system. You 13 have to have a QAM modulator. 14 Q And a QAM transmitter? 15 A Yeah, sort of included that when I said 16 modulator. But, yeah, sure, as a component with the 17 modulator, the transmitter was generally built in. 18 That's why I said it that way. 19 Q Thank you for clarifying. 20 The set-top box would also have to have a 21 demodulator or a QAM receiver? 22 A Right, and -- sure. 23 Q Now, the modulator and demodulator in that 24 closed system, that's different hardware for QAM 25 than it is for QPSK, right?	Page 28 1 A It's hard to say. I mean so, again, QAM 2 and QPSK are basically -- they're both QAM 3 modulation and they're both QAM demodulation. It's 4 just different number of points in the 5 constellation. 6 If I had a particular vendor's modulator, 7 you know, I might be able to look at it and know if 8 it could do QPSK and a higher constellation rate 9 QAM. 10 Q Let's go back to your time at Scientific 11 Atlanta and Cisco Systems. In the design and 12 development process of set-top boxes, would it be 13 that Scientific Atlanta or Cisco Systems would 14 develop a new box and then go to an MSO and say, 15 here's a cool new idea, or would it be the other way 16 around, where the MSO would come to Scientific 17 Atlanta or Cisco and say this is what we need 18 building? 19 A I think the right answer is both. It's a 20 collaborative process, where, you know, we might 21 have an idea that we would pitch to them. And we 22 had a very close relationship, you know. I used to 23 call it, I love my six customers, right. 24 And so we would often come up with ideas 25 and say, hey, what do you think about that? And
Page 27 1 A I think a QAM demodulator can receive 2 QPSK, which is basically with, you know, four points 3 in the constellation as opposed to higher. 4 So, you know, you could call QPSK4 QAM. 5 You could call -- you know, and then you go up from 6 there. So eight QAM, 16 QAM. 7 64 QAM was very common for transmitting 8 video channels, and 256 QAM. 9 So it's basically just a different number 10 of points in the constellation, and, you know, bits 11 per symbol. It's basically the same thing. QPSK 12 and QAM are the same, and I think I may have even 13 said that in my declaration. 14 Q Is it your testimony that a QPSK modulator 15 and demodulator could also send DOCSIS information 16 in channels? 17 A I don't think that the DOCSIS standard -- 18 it may have but I don't think the DOCSIS standard 19 specified QPSK as one of the choices for the number 20 of points in the constellation for QAM. It may have 21 but I don't -- I don't think it did. 22 Q So if an MSO had a QPSK modulator for 23 sending information from the headend and it wanted 24 to implement DOCSIS, would it have to change that 25 modulator?	Page 29 1 they would often say, hey, I've got an idea, what do 2 you think about that? 3 And then we would talk about it and maybe, 4 you know, they might say how much would that cost, 5 and that was very important. And we would say, 6 okay, this is how much it would cost to implement 7 that. And they would say, nevermind, or they would 8 say, okay, let's see a prototype or whatever. 9 And so it's very -- back-and-forth, 10 back-and-forth, right. And we would often then take 11 the first prototypes and show it to customers or 12 them come to our offices to look at the prototypes, 13 and then sort of get another checkpoint about 14 whether we should proceed or whether we should pivot 15 to another idea or we should perhaps, you know, 16 abandon the idea. 17 So, like I say, it was very interactive. 18 Q In 2011, if a person of skill in the art 19 wanted to build a multichannel receiver, why 20 wouldn't they just start with Konstantinos and build 21 a box around that? 22 A Because as Kamieniecki described, it was 23 impractical. And he discloses that, and I know that 24 firsthand. 25 Q What was impractical?

Page 30 1 A To build a set-top box with more than two 2 video tuners. 3 Q I'm sorry, I think you might have confused 4 Konstantinos and Kamieniecki. So let me ask it 5 again. 6 In 2011, if a person of skill in the art 7 wanted to build a multichannel receiver set-top box, 8 why wouldn't they start with Konstantinos and build 9 a box around that? 10 A So as Kamieniecki describes, there's a 11 market -- there's a desire to monitor four channels. 12 So a POSITA would, based on the teachings of 13 Kamieniecki, start with -- well, not start with, but 14 perhaps in combination he would want to monitor a 15 lot of channels, right. And Konstantinos would 16 provide a very good solution that's practical as 17 opposed to impractical for monitoring more than one 18 channel, as described by Kamieniecki, more than one 19 video channel, right. 20 And so a POSITA would look at and say this 21 disclosure of Konstantinos provides a practical way 22 to implement a whole bunch of tuners. A whole bunch 23 of channel selectors, let's call it, so that it 24 could accomplish the monitoring more than one video 25 channel at a time, as described by Kamieniecki.	Page 32 1 And so that is five years before 2 Konstantinos, right. So, so, you know, I agree that 3 in 2005 -- or actually even before that, there was a 4 need, as described by Kamieniecki, to monitor the 5 network to improve services and provide the best 6 quality service to customers. 7 So I think we were -- we were concerned on 8 that, you know, earlier. Like I can remember in 9 analog days in, you know, 1980s, we were concerned 10 about how to monitor more channels, right. And at 11 that time there wasn't a strong market demand or 12 desire to watch, you know, multiple channels at the 13 same time, or it wasn't really practical. 14 So we were -- I think it's more accurate 15 to say you start with Kamieniecki, and then you work 16 to Konstantinos on how to solve how to do what's 17 been desired for so long as described by Kamieniecki 18 to be able to monitor many channels. 19 Q So is it your testimony that a person of 20 skill in the art couldn't start with Konstantinos 21 instead of Kamieniecki? 22 A I don't know what you mean by start with. 23 Q Well, you just referred to start with in 24 relation to Kamieniecki. So what did you use when 25 you used the phrase "start with"?
Page 31 1 Q I'm not quite sure if that answered my 2 question but let me try it a different way. 3 In 2011, you're saying a person of skill 4 in the art would look at Konstantinos and they would 5 see Konstantinos is a practical way to implement a 6 whole bunch of channel selectors; is that accurate? 7 A That's right. And he describes that it's 8 impractical to put more than two tuners. I agree 9 with that emphatically. Two individual single 10 channel tuners. 11 Q So if Konstantinos is a practical way to 12 multichannel selectors, and parallel individual 13 tuners is impractical, why wouldn't a person of 14 skill in the art in designing a multichannel tuner 15 set-top box start with Konstantinos and build a 16 set-top box around that? 17 MR. QUALEY: Objection to form. 18 A I'm not sure I understand what you mean. 19 So the -- there was a market need like much earlier, 20 right, to talk about that we want to monitor -- 21 there's a need to monitor more channels so that we 22 could provide, you know, better service by 23 addressing any particular issues that were seen on 24 those channels and be proactive with customer 25 support.	Page 33 1 A So I was referring to a point in time. So 2 2005 is earlier than 2011, right. So we were 3 concerned about monitoring multiple channels a long 4 time before 2011, as disclosed by Kamieniecki. 5 So to me start with is the earliest thing 6 would be. That's the way I used it. Perhaps that's 7 incorrect to say it that way, but we were trying to 8 do this a long time before Konstantinos. 9 Q So maybe I misunderstand your opinions on 10 the combination. Let me ask you some questions to 11 see if we're on the same page. 12 Is it your opinion that a person of skill 13 in the art in 2011 would look to combine Kamieniecki 14 and Konstantinos? 15 A That's right. 16 Q And in that process of combination, is it 17 your opinion that the person of skill in the art 18 would use Kamieniecki as a baseline, a starting 19 point, and then integrate the chip of Konstantinos 20 into that baseline starting point? 21 A I think that's what I described, yes, 22 because, you know, essentially we're taking the 23 single chip implementation as an example, disclosed 24 by Konstantinos, and using that for the channel 25 selector functionality, and we're in the -- in the

Page 34 1 -- let's call it the architecture of Kamieniecki. 2 Q So in 2011, instead of doing that, why 3 wouldn't a person of skill in the art looking to 4 build a multichannel tuner set-top box, to be 5 compliant with DOCSIS and whatever else, start with 6 the teachings and disclosure of Konstantinos and 7 build a set-top box around that? 8 MR. QUALEY: Objection to form. 9 A I mean I don't understand the question. 10 Q What don't you understand about it? 11 A Maybe you could break it down into 12 sections for me. 13 Q I just did. We've established that you 14 are going to take Kamieniecki as a starting place 15 and add Konstantinos into that. Correct? 16 A So what I did was I mapped the claims in 17 the patents, like the '008 and '826, to prior art 18 that was known, and would be known by a POSITA, to 19 implement that functionality, and it's clearly 20 disclosed that taking the Kamieniecki architecture 21 and using the single chip implementation of the 22 multichannel receiver from Konstantinos would be 23 known and understood and obvious to do. 24 So I don't understand your question. 25 Q My question is, why wouldn't a person of	Page 36 1 was a well-known, sought-after problem. So I would 2 contend that somebody, a POSITA, would have been 3 looking at Kamieniecki and going, yeah, we can do 4 that and we probably will do that but I sure wish we 5 could do that on more channels, and they're thinking 6 about that for a long time, many years, right. 7 And then we have a disclosure of 8 Konstantinos that says, aha, this is how we can do 9 it with -- this is how we can monitor a whole bunch 10 of channels. And, oh, by the way, we also can offer 11 the capability to watch and record a bunch of 12 channels, because DVR had been invented at that 13 point and we had been putting, you know, two tuners, 14 and we tried three and it was impractical. And this 15 is Konstantinos' description of exactly how to solve 16 that problem and that we could do both monitoring 17 and provide video services for multiple channels. 18 Q Other than what you've already testified 19 today, can you give me any other reason why a person 20 of skill in the art would not start with 21 Konstantinos for its teachings of implementing a 22 whole bunch of channel selectors, as you say, in 23 2011, as opposed to starting with Kamieniecki? 24 A There probably are other reasons. I just 25 don't think of -- I can't think of any right now.
Page 35 1 skill in the art, instead of doing what you just 2 said they would do, why wouldn't they start with 3 Konstantinos, which you say discloses a practical 4 way to implement a whole bunch of channel selectors? 5 A Because the objectives -- one of the 6 objectives was to monitor signal quality on a cable 7 network on many channels, and that was known for a 8 long time in the industry. 9 That was desired and discussed much 10 longer, much before the need to watch and record -- 11 DVR, you know, came along after the, you know, sort 12 of single channel set-top boxes, where we had a 13 whole network and we were still trying to figure out 14 how to monitor the network in the best way, right. 15 So that was known a long time before all 16 these other things came along. 17 Q What would be more important to a POSITA 18 in 2011, monitoring or tuning of multiple channels? 19 A It's not an either/or. It's both. 20 Q So if it's both, than why is it your 21 belief that a person of skill in the art would start 22 with Kamieniecki for its disclosure of monitoring 23 instead of Konstantinos for its disclosure of tuning 24 multiple channels? 25 A And I contend it was because monitoring	Page 37 1 Q So you haven't provided opinions on any of 2 those other reasons in this case? 3 A I'm not sure if I did. Perhaps you can 4 point me to it in my declaration. 5 Q I don't see it. 6 A I don't recall my memory about it, about 7 that. 8 Q I don't think you addressed this issue. 9 I'm just confirming you don't have any lingering 10 opinions that I don't already know about. 11 A I really haven't thought about the other 12 way that you're talking about. That's sort of new 13 way of looking at things, and I think I've not 14 rendered an opinion on it. 15 I would need to study that to really 16 render an opinion, I think. 17 MR. GALLUZZO: Let's take a quick break, 18 maybe five minutes. 19 THE WITNESS: Okay. 20 (A recess was taken at 10:53 a.m. until 21 11:02 a.m.) 22 BY MR. GALLUZZO: 23 Q All right, Mr. Lett, just a few more 24 questions from me. 25 We're going to start back with Kamieniecki

Page 38 1 again. I first want to talk about what 2 Kamieniecki's set-top box is receiving. 3 I think you'll agree with me Kamieniecki 4 is receiving digital information modulated onto an 5 analog carrier; is that right? 6 A Well, I think he doesn't limit it to 7 digitally. It could be -- he describes MPEG, and so 8 certainly capable of receiving digitally modulated 9 content. 10 I think he probably even doesn't exclude 11 using it for all the analog channels also. 12 Q I think you're right about that and I 13 guess I should have asked my question a bit 14 differently. 15 Kamieniecki is capable of receiving 16 digital information modulated onto an analog 17 carrier? 18 A Yeah, that's right. Because he describes 19 receiving MPEG to and DOCSIS -- excuse me. Cable 20 modem. 21 Q When Kamieniecki is receiving that kind of 22 information, Kamieniecki's in-band tuner is 23 selecting a channel within that analog carrier; is 24 that right? 25 A Yeah, that's fair to say.	Page 40 1 Kamieniecki with the single chip implementation of 2 Konstantinos. 3 Q I understand that's your combination. 4 Right now I'm talking specifically about what 5 Kamieniecki discloses, as you see it. 6 So I know you believe Kamieniecki has an 7 ADC in it. I want to make sure I know where you 8 think that ADC was. 9 So where is it, in your opinion, the ADC 10 is in Kamieniecki? 11 A Well, he doesn't really show where it is 12 and doesn't really talk about -- I forget the words 13 he uses, but he doesn't talk about the details. 14 What he's talking about is the 15 functionality of monitoring in this patent, and so 16 those details are not really disclosed. 17 Q So you refer in rebuttal to Dr. Russ, that 18 the ADC in Kamieniecki would be part of 19 Kamieniecki's, quote, "further processing." 20 Do you recall that testimony, in your 21 reply declaration? 22 A Let me look at it. I'm going to look at 23 my reply declaration. 24 Should I look at the '008 or the '826? 25 Q It doesn't matter. I believe they are
Page 39 1 Q And then once that channel is selected, 2 that channel is digitized, in your opinion; is that 3 right? 4 A That's right, and that's why, you know, we 5 need to support more tuners. That's why I use the 6 combination with Konstantinos. 7 Q The digitization that you opine on in 8 Kamieniecki, that's being done by an 9 analog-to-digital converter, an ADC? 10 A That's right. 11 Q Just to be clear about where that is, it's 12 your opinion that the ADC would be after the in-band 13 tuner but before the monitor in Kamieniecki; is that 14 right? 15 A No. I think it's, you know, on the input 16 signal, right, as we show with Konstantinos, 17 because, you know -- obviously you have to have ADC 18 if we're receiving MPEG channels, right, because it 19 has to be digitized and then demodulated and decoded 20 and so on, all the correction. All the digital 21 stuff has to occur, right. So obviously you would 22 have an ADC. 23 So what I described in the combination was 24 essentially replacing the downstream portion of data 25 band tuner as well as an in-band tuners of	Page 41 1 both the same on this point. 2 A Okay. 3 (Pause.) 4 A Okay, I see the point. Now, what's your 5 question? 6 Q I just wanted to confirm that that's where 7 you believe the ADC is operating, in that further 8 processing, identified by Dr. Russ? 9 This is Paragraph 18. 10 A Yes. I'm looking at it. Give me just a 11 second to refamiliarize myself with this section. 12 (Pause.) 13 A Okay. Repeat the question, please. 14 Q I want to confirm that you believe the ADC 15 in Kamieniecki is part of what Dr. Russ has 16 identified as further processing? 17 A Dr. Russ does not identify the ADC as part 18 of further processing. 19 Q My question is, is that where you identify 20 the ADC as being, as part of that further 21 processing? 22 A In fact, I said a POSITA would recognize 23 the further processing could certainly include the 24 ADC, as it was known the digital signals can be 25 monitored.

Page 42 1 Q And so in your opinion, that's where the 2 ADC would be, as part of the further processing? 3 A So are we talking about the combination 4 when we're talking about further processing? 5 Q No. Right now we're just talking about 6 Kamieniecki. 7 A So Kamieniecki doesn't describe -- doesn't 8 disclose exactly what he means by further 9 processing. So it's not to say that it could 10 include the ADC. 11 Q Are you familiar with power requirements 12 for ADCs? 13 A In general, yes. 14 Q Would you agree with me that an ADC that 15 is digitizing a six megahertz channel requires less 16 power than an ADC that is digitizing a one gigahertz 17 spectrum? 18 A Well, it depends on a lot of things, like, 19 for example, what type of silicon is used, and what 20 geometry is used. So, you know, as you probably 21 know, as the -- for example, CMOS, for example, 22 started at a higher geometry and worked down to like 23 90 nanometers and 45 nanometers and this kind of 24 thing, right. 25 So the cost was really a function of how	Page 44 1 you think of a single ADC that could digitize 2 an entire one gigahertz spectrum that required 3 less power than an ADC that could only 4 digitize a single six megahertz channel?") 5 (Pause.) 6 A So Konstantinos addressed the power 7 requirements of such a multichannel tuner by 8 disclosing the interleaved architect for its ADC, 9 and that's in Paragraphs 59 through 61 of 10 Konstantinos. 11 So he recognized that traditional ways of 12 implementing such an ADC could be greatly improved 13 when power requirements by the interleaved sampling 14 and digitization architecture that he discloses. 15 Q Thank you. Are you able to answer the 16 question that I asked? 17 A I don't know the answer. 18 MR. GALLUZZO: Thank you, Mr. Lett. 19 I have no further questions. 20 MR. QUALEY: Can we go off the record for 21 just a minute. 22 MR. GALLUZZO: Sure. 23 (A recess was taken at 11:19 a.m. until 24 11:26 a.m.) 25 MR. QUALEY: I have no questions for the
Page 43 1 big -- how much area would it take up on a chip, 2 right. And also the power was a function of the 3 silicon geometry. 4 So it depends, is the answer. 5 Q In 2011, did an ADC digitizing only a six 6 megahertz channel require less power than an ADC 7 digitizing a one gigahertz spectrum? 8 A There's a lot of other factors, like, 9 again -- it may or may not, depending on what you're 10 comparing. Comparing what to what? 11 Q From your experience in 2011, can you 12 think of a single ADC that could digitize an entire 13 one gigahertz spectrum that required less power than 14 an ADC that could only digitize a single six 15 megahertz channel? 16 A So I'm going to look at Konstantinos to 17 answer your question. 18 (Pause.) 19 A I'm sorry, perhaps I was thinking about 20 something else. Can you repeat that question? 21 MR. GALLUZZO: Ms. Robinson, would you 22 mind repeating it back. I have since 23 forgotten. 24 (The record was read by the reporter as 25 follows: "From your experience in 2011, can	Page 45 1 witness either. Thank you. 2 MR. GALLUZZO: Off the record. 3 (Whereupon, the deposition concluded at 4 11:26 a.m.) 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Page 46 C E R T I F I C A T E STATE OF GEORGIA: FULTON COUNTY: I hereby certify that the foregoing transcript of DAVID B. LETT was taken down, as stated in the caption, and the questions and answers thereto were reduced by stenographic means under my direction; That the foregoing Pages 1 through 45 represent a true and correct transcript of the evidence given upon said hearing; And I further certify that I am not of kin or counsel to the parties in this case; am not in the regular employ of counsel for any of said parties; nor am I in anywise interested in the result of said case. IN WITNESS WHEREOF, I have hereunto subscribed my name this 7th day of April, 2025. <i>Wanda L. Robinson</i> Wanda L. Robinson, CRR, CCR No. B-1973 My Commission Expires 10/11/2027	Page 48 Veritext Legal Solutions 1100 Superior Ave Suite 1820 Cleveland, Ohio 44114 Phone: 216-523-1313 April 10, 2025 To: Mr. Qualey Case Name: Comcast Cable Communications, LLC v. Entropic Communications, LLC Veritext Reference Number: 7275104 Witness: David B. Lett Deposition Date: 4/3/2025 Dear Sir: Enclosed please find a deposition transcript. Please have the witness review the transcript and note any changes or corrections on the included errata sheet, indicating the page, line number, change, and the reason for the change. Have the witness' signature notarized and forward the completed page(s) back to us at the Production address shown above, or email to production-midwest@veritext.com. If the errata is not returned within thirty days of your receipt of this letter, the reading and signing will be deemed waived. Sincerely, Production Department NO NOTARY REQUIRED IN CA
Page 47 D I S C L O S U R E STATE OF GEORGIA) VIDEOTAPE DEPOSITION OF FULTON COUNTY) DAVID B. LETT - 4/03/2025 Pursuant to Article 10.B of the Rules and Regulations of the Board of Court Reporting Of the Judicial Council of Georgia, I make the following disclosure: I am a Georgia certified court reporter. I am here as a representative of Veritext Legal Solutions, and Veritext Legal Solutions was contacted by the offices of K&L Gaates LLP to provide court reporter services for this deposition. Veritext Legal Solutions will not be taking this deposition under any contract that is prohibited by O.C.G.A. 9-11-28 (c). Veritext Legal Solutions has no contract/agreement to provide court reporter services with any party to the case, or any counsel in the case, or any reporter or reporting agency from whom a referral might have been made to cover this deposition. Veritext Legal Solutions will charge the usual and customary rates to all parties in the case, and a financial discount will not be given to any party to this litigation. Wanda L. Robinson, CRR, CCR No. B-1973	Page 49 D E P O S I T I O N R E V I E W C E R T I F I C A T I O N O F W I T N E S S ASSIGNMENT REFERENCE NO: 7275104 CASE NAME: Comcast Cable Communications, LLC v. Entropic Communications, LLC DATE OF DEPOSITION: 4/3/2025 WITNESS' NAME: David B. Lett In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me. I have made no changes to the testimony as transcribed by the court reporter. Date David B. Lett Sworn to and subscribed before me, a Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that: They have read the transcript; They signed the foregoing Sworn Statement; and Their execution of this Statement is of their free act and deed. I have affixed my name and official seal this _____ day of _____, 20____. _____ Notary Public _____ Commission Expiration Date

Page 50 1 DEPOSITION REVIEW 2 CERTIFICATION OF WITNESS 3 ASSIGNMENT REFERENCE NO: 7275104 4 CASE NAME: Comcast Cable Communications, LLC v. Entropic 5 Communications, LLC 6 DATE OF DEPOSITION: 4/3/2025 7 WITNESS' NAME: David B. Lett 8 In accordance with the Rules of Civil 9 Procedure, I have read the entire transcript of 10 my testimony or it has been read to me. 11 I have listed my changes on the attached 12 Errata Sheet, listing page and line numbers as 13 well as the reason(s) for the change(s). 14 I request that these changes be entered 15 as part of the record of my testimony. 16 17 I have executed the Errata Sheet, as well 18 as this Certificate, and request and authorize 19 that both be appended to the transcript of my 20 testimony and be incorporated therein. 21 _____ 22 Date David B. Lett 23 24 Sworn to and subscribed before me, a 25 Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that: They have read the transcript; They have listed all of their corrections in the appended Errata Sheet; They signed the foregoing Sworn Statement; and Their execution of this Statement is of their free act and deed. I have affixed my name and official seal this _____ day of _____, 20____. _____ Notary Public _____ Commission Expiration Date	
Page 51 1 ERRATA SHEET 2 VERITEXT LEGAL SOLUTIONS MIDWEST 3 ASSIGNMENT NO: 7275104 4 PAGE/LINE(S) / CHANGE /REASON 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10 _____ 11 _____ 12 _____ 13 _____ 14 _____ 15 _____ 16 _____ 17 _____ 18 _____ 19 _____ 20 _____ 21 _____ 22 _____ 23 _____ 24 _____ 25 _____ 26 _____ 27 _____ 28 _____ 29 _____ 30 _____ 31 _____ 32 _____ 33 _____ 34 _____ 35 _____ 36 _____ 37 _____ 38 _____ 39 _____ 40 _____ 41 _____ 42 _____ 43 _____ 44 _____ 45 _____ 46 _____ 47 _____ 48 _____ 49 _____ 50 _____ 51 _____ 52 _____ 53 _____ 54 _____ 55 _____ 56 _____ 57 _____ 58 _____ 59 _____ 60 _____ 61 _____ 62 _____ 63 _____ 64 _____ 65 _____ 66 _____ 67 _____ 68 _____ 69 _____ 70 _____ 71 _____ 72 _____ 73 _____ 74 _____ 75 _____ 76 _____ 77 _____ 78 _____ 79 _____ 80 _____ 81 _____ 82 _____ 83 _____ 84 _____ 85 _____ 86 _____ 87 _____ 88 _____ 89 _____ 90 _____ 91 _____ 92 _____ 93 _____ 94 _____ 95 _____ 96 _____ 97 _____ 98 _____ 99 _____ 100 _____ 101 _____ 102 _____ 103 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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

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COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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